Service Manual

SR-12
MONITOR

PGS Princeton Graphic Systems

An Intelligent Systems Company

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Specifications

• **Receivable Frequency Range:**	Video signal frequency
• **CRT:**	12-inch 90°, .31mm dot pitch black matrix, non-glare
• **CRT Size:**	28.1 cm wide, 22.2 cm high and 32.2 cm diagonal
• **Power Consumption:**	95W
• **High Voltage Output:**	24.0KV
• **Semiconductors:**	11 integrated circuits 20 transistors 31 diodes 1 bridge diode
• **Power Supply:**	120V AC, 60Hz or 220/240V AC, 50Hz
• **Cabinet:**	Plastic
• **Dimensions:**	37.7(W) x28.0(H) x38.3(D) cm
• **Weight:**	13.2kg
• **AC Cord:**	1.9m
• **Input Connector:**	9-pin "D" subminiature connector
• **Input Signal:**	R.G.B. Intensity direct drive system
• **Video Signal Input:**	TTL level, positive
• **Ver./Hor. Sync:**	TTL level, positive
• **Intensity:**	TTL level, positive
• **Scanning Frequency:**	Horizontal—31.4 KHz Vertical—60Hz
• **Active Video Period:**	Horizontal—24.0μs max Vertical—14.61ms max
• **Resolution:**	Horizontal—690 dots Vertical—480 dots (NON Interlace)
• **Active Display Area:**	215(W) x160(H) mm
• **Display Characteristics:**	80 characters with 25 lines—(8 x 16 dots)
• **Display Colors:**	Red, green, blue, cyan, yellow, magenta, black, white & 2 intensity levels (**16 colors including brown**)
• **Accessories:**	Owner's Manual Signal Cable Power Cord

NOTE: SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Please be thoroughly familiar with all of the following safety checks and servicing guidelines before any service work is performed.

WARNING

1. For continued safety and service, do not attempt to modify any circuits.
2. Disconnect the AC plug from the AC outlet before servicing unit.
3. The semiconductor heat sinks are potential shock hazards when the chassis is in operation.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When attempting to service the high voltage system, remove the static charge by placing a 10K ohm resistor in series with an insulated wire, such as a test probe, between the chassis and the anode lead.

1. The picture tube in this monitor uses integral implosion protection.
2. Always replace the tube with the same type and number.
3. Be careful not to lift the picture tube by the neck.
4. Only handle the picture tube after discharging the high voltage completely and when wearing shatter-proof goggles.

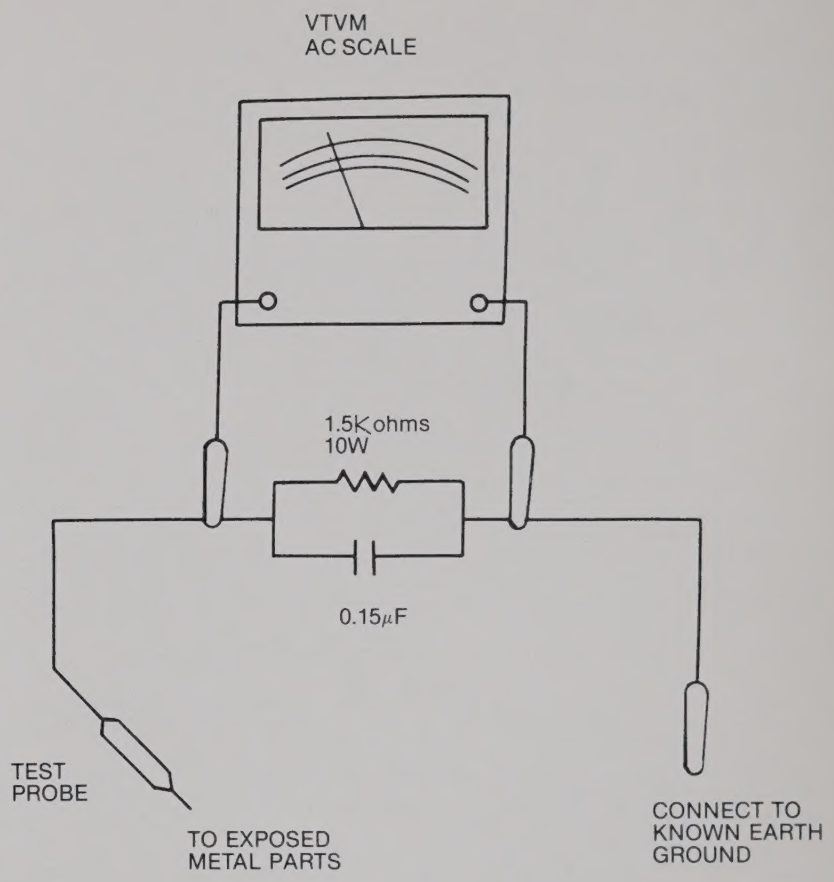
X RADIATION AND HIGH VOLTAGE LIMITS

1. X radiation can be potentially hazardous and should be approached with extreme caution.
2. The only potential sources of X-ray are in the picture tube. If the high voltage is kept at factory set levels, there are no measurable X-ray emissions from the picture tube. However, only if the high voltage exceeds factory set levels is the X-radiation capable of penetrating the shield of the lead filled picture tube. Therefore, it is vital to maintain the high voltage at the preset levels.
3. Operation at higher voltages could also cause failures in the picture tube or high voltage circuitry, aside from excess radiation.
4. When servicing a monitor with excessive high voltage, avoid being unnecessarily close to the monitor when making measurements. Also, do not operate the monitor longer than is necessary to locate the cause of the excessive voltage.
5. Everytime a color chasis is serviced, the brightness should be tested while the high voltage is being monitored with a meter. This is necessary to be certain that the high voltage is not excessive and that the high voltage regulators are operating properly.
6. An accurate high voltage meter, which has been checked periodically should be available at all times.
7. Replace a picture tube only with the model specified and do not make unrecommended circuit modifications in the high voltage circuitry.

FIRE AND SHOCK HAZARD

Please perform the following checks before returning unit to customer:

1. Check to see that there is no hardware lodged between the chassis and any metal parts in the monitor. Also make certain that all lead dress are not pinched.
2. Check all the non-metallic protective devices such as control knobs, cabinet backs, insulating fishpapers, compartment covers, isolation resistor, capacitor networks, mechanical insulators, etc.
3. To insure against shock hazards, check for leakage of current in the following manner:
   - Plug the AC cord directly into a 110/120 volt AC or 220/240 V AC outlet. Do not use an isolation transformer for this test.
   - While using two clip leads, connect a 1.5K ohm, 10 watt resistor paralleled by a 0.15 μf capacitor in series with all exposed metal cabinet parts with a known ground, such as a water pipe.
   - While using a VTVM or VOM with 1000 ohm per volt (or higher) sensitivity, measure the AC voltage drop across the resistor (see figure 1).
   - Move the resistor connection to the earth exposed metal part while having a return path to the chassis (metal cabinet, screw leads, knobs, etc.) and measure the AC drop across the resistor.
   - Repeat the checks with the AC cord plug connector reversed. It may be necessary to use a non-polarized adaptor plug to perform these checks.
   - Any reading of 0.3 volt RMS (equal to 0.2 milliamps AC) or more is dangerous and indicates a potential shock hazard to the customer and must be corrected.



SAFETY NOTICE

Many electrical and mechanical parts in Display Monitors have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Relacement parts which have these special safety characteristics are identified in this manual, electrical components having such features are identified by '▲'' in the replacement Parts Lists.

For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

Location of Controls

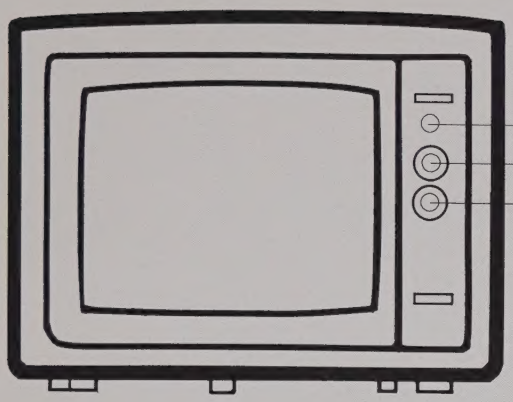


FIG. 1

PILOT LAMP

POWER SWITCH

BRIGHTNESS CONTROL

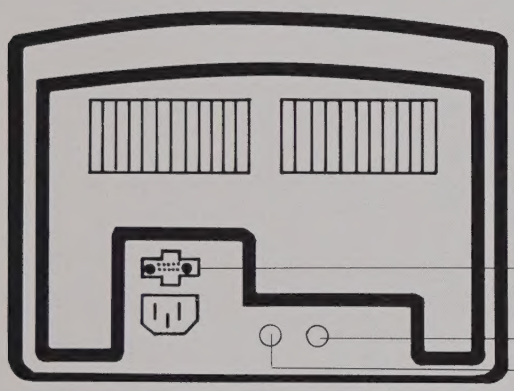


FIG. 2

INPUT TERMINAL

HORIZONTAL HOLD

VERTICAL HOLD

Adjustment of Semi-Fixed Controls

12" COLOR MONITOR ALIGNMENT PROCEDURE

Warm up monitor at least 15 minutes before adjustment, then apply standard pattern (16 colors).

1. B+ VOLTAGE ADJUSTMENT

Connect the DVM (with a range of 200V) between the TR804 emitter of the power board and the ground, then adjust VR801 to obtain 90 volts on the DVM display. At this moment, make sure μA7815 and μA7805 Reg IC output are $15V_{DC} \pm 0.3V_{DC}$ & $5V_{DC} \pm 0.2V_{DC}$ individually nor not.

2. VIDEO LEVEL ADJUSTMENT

Apply 16 color bars pattern and take the B504 connection off. Connect the oscilloscope between the KR, KG & KB each of the CRT and the ground. Next, adjust video level control (VR501, VR511, VR521) for black to white waveform amplitude of 40Vp-p.

3. INTENSITY ADJUSTMENT

Return B504; then adjust (VR102, VR103, VR104) each for not only combination waveform amplitude of 52Vp-p but also keeping the frequency response flat.

4. BROWN COLOR ADJUSTMENT

Adjust the VR101 for optimum brown color appearance from the CRT screen.

5. HORIZONTAL SYNC ADJUSTMENT

Apply the standard signal (F_H: 31.4KHz) and disconnect the horizontal synch input; then adjust VR301 (H-HOLD) for correct free-running frequency (picture drifting back and forth slowly), return the horizontal sync input to confirm the stability of synchronization by turning the power switch on and off.

6. VERTICAL SYNC ADJUSTMENT

Apply the standard pattern (F_V: 59.94Hz) and adjust VR401 (V-HOLD) until synchronization is secured from the CRT display.

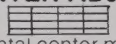
7. LINEARITY COIL ADJUSTMENT

Apply a standard crosshatch pattern, then adjust L401 to obtain the best linearity with symmetrical square block.

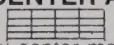
8. VERTICAL HEIGHT ADJUSTMENT (160m/m ± 5m/m)

Set-up normal vertical scan by adjusting vertical size (VR402) until the proper verticle height is obtained.

9. VERTICAL CENTER ADJUSTMENT

Apply a test pattern  , then adjust VR406 to keep the horizontal center line of the test pattern lined up with horizontal center mark point of the CRT screen.

10. HORIZONTAL CENTER ADJUSTMENT

Apply a test pattern  , then adjust V404 to keep the vertical center line of the test pattern lined up with vertical center mark point of the CRT screen.

11. HORIZONTAL WIDTH ADJUSTMENT (215m/m ± 5m/m)

Apply a standard signal (or equivalent signal) that completely fills the screen then adjust L402 & L403 smoothly to meet spec above.

12. FOCUS ADJUSTMENT

Display an H standard pattern, then check focus control VR491 for adequate voltage range and adjust for best focus.

13. SCREEN VR & SUB—BRI ADJUSTMENT

Apply the IBM standard pattern, then step by step adjust as following:

1) Set screen control VR602 to mid-range
2) Set bright control VR603 to max-range
3) Slowly increase screen control VR602 to get the optimum brightness
4) Rotate bright control VR603 fully ccw. At this moment, the black bar (or background) of the CRT screen should be just out of cut-off. If not, adjust sub-bri control VR601 to obtain it
5) Set bright control VR603 to max-range. Check the raster visible or not. If visible, adjust screen control VR602 down for the raster to just disappear
6) Recheck that the bri-contol/VR603 has proper control/action. If necessary, repeat above steps

14. HIGH VOLTAGE REGULATION

Check H.V. regulation by noting CRT anode voltage at zero beam and 0.3mA beam current. H.V. drop should be 1KV max.

15. PINCUSHION & BARREL ADJUSTMENT

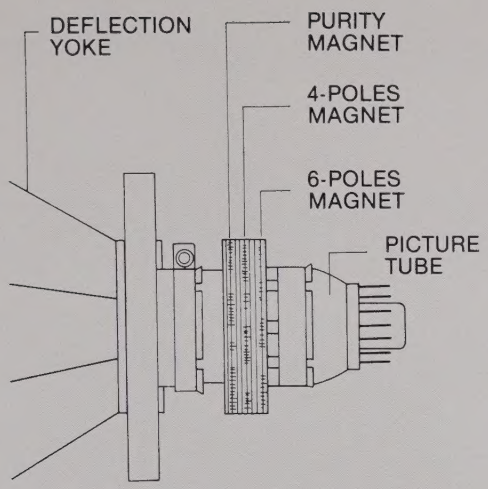
Apply a standard crosshatch pattern, then adjust VR405 to obtain the min distortion on the CRT screen.

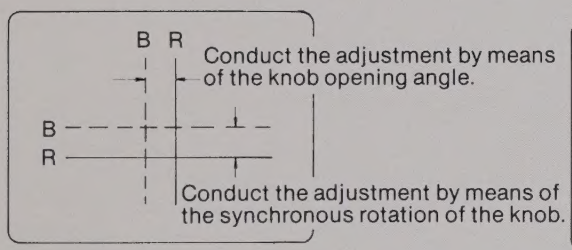
16. HIGH VOLTAGE PROTECTION ADJUSTMENT

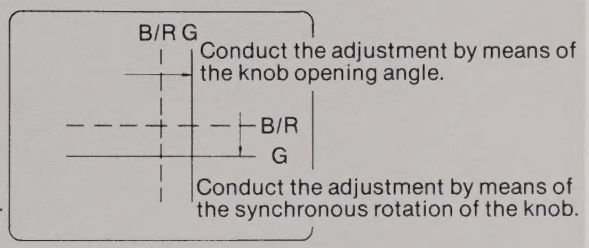
Set VR403 to fully ccw, adjust VR801 slowly to reach H.V. is 26.5KV, then smoothly adjust VR403 for just protection circuit on. Next, adjust 90V main B_+ again.

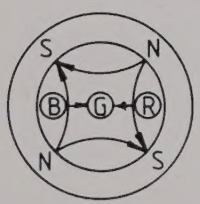
17. HIGH VOLTAGE CHECK

The anode voltage must be 24.5KV ± 1.5KV at zero beam current.

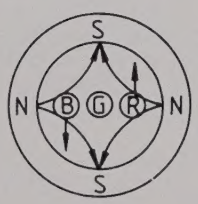



B R
Conduct the adjustment by means of the knob opening angle.
B
R
Conduct the adjustment by means of the synchronous rotation of the knob.


B/R G
Conduct the adjustment by means of the knob opening angle.
B/R
G
Conduct the adjustment by means of the synchronous rotation of the knob.



Beam migration in application of 4-pole magnets.

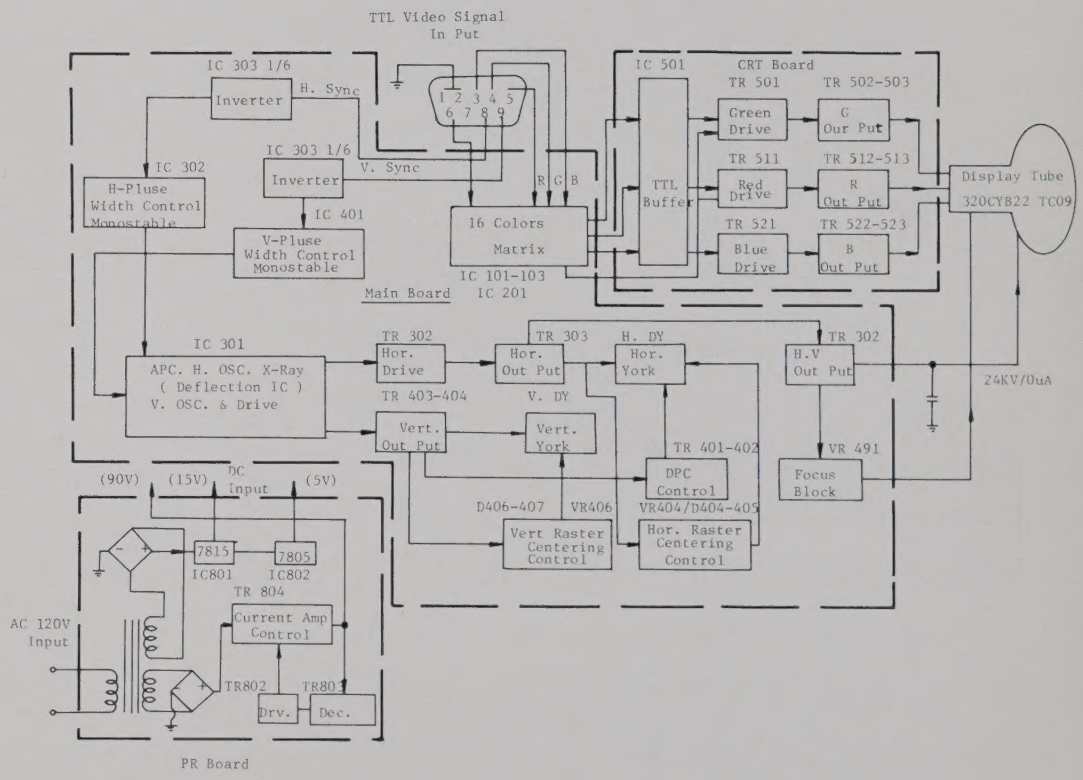


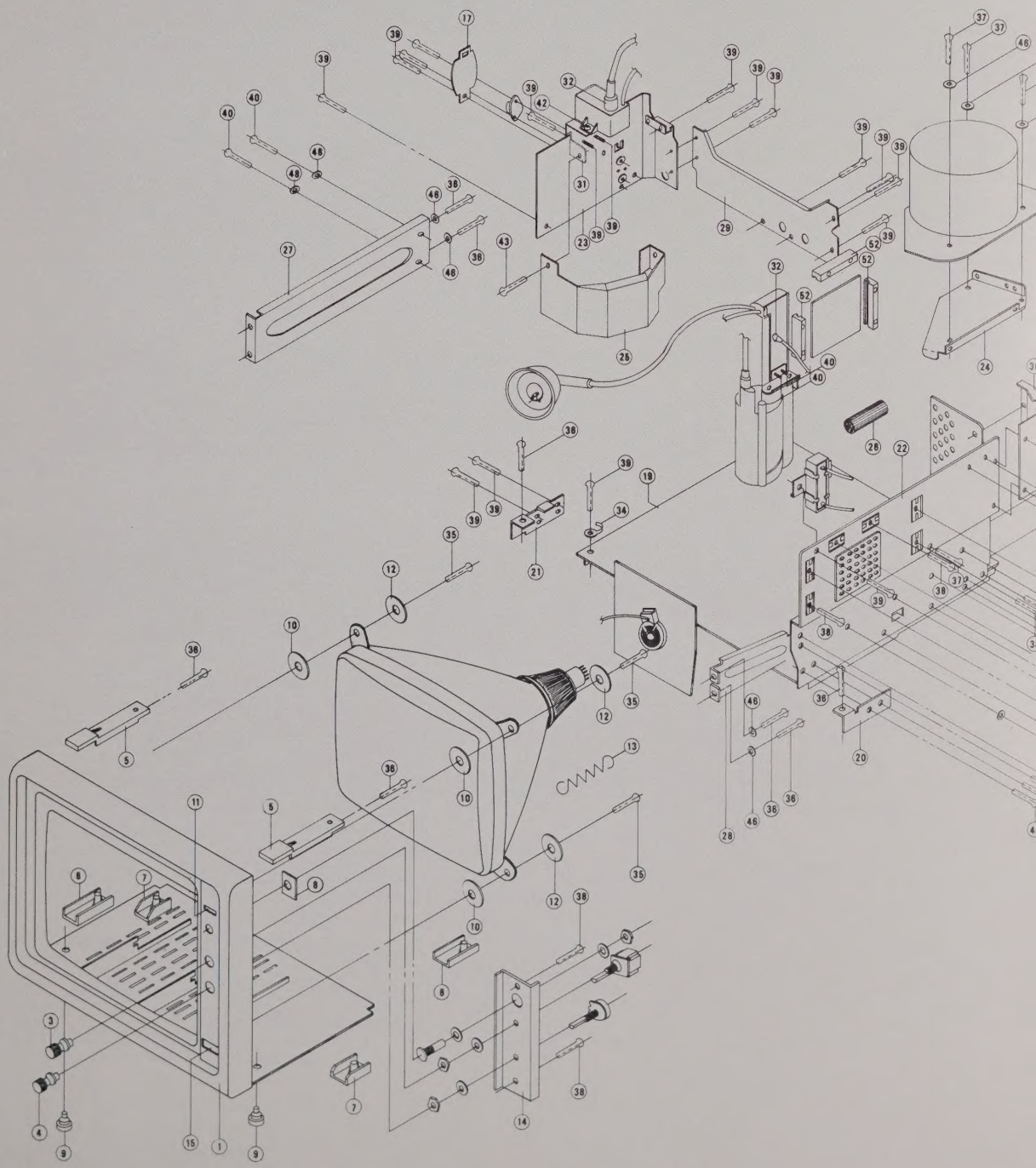
Beam migration in application of 4-pole magnets rotated.

Beam migration in application of 6-pole magnets.

Beam migration in application of 6-pole magnets rotated.

Block Diagram





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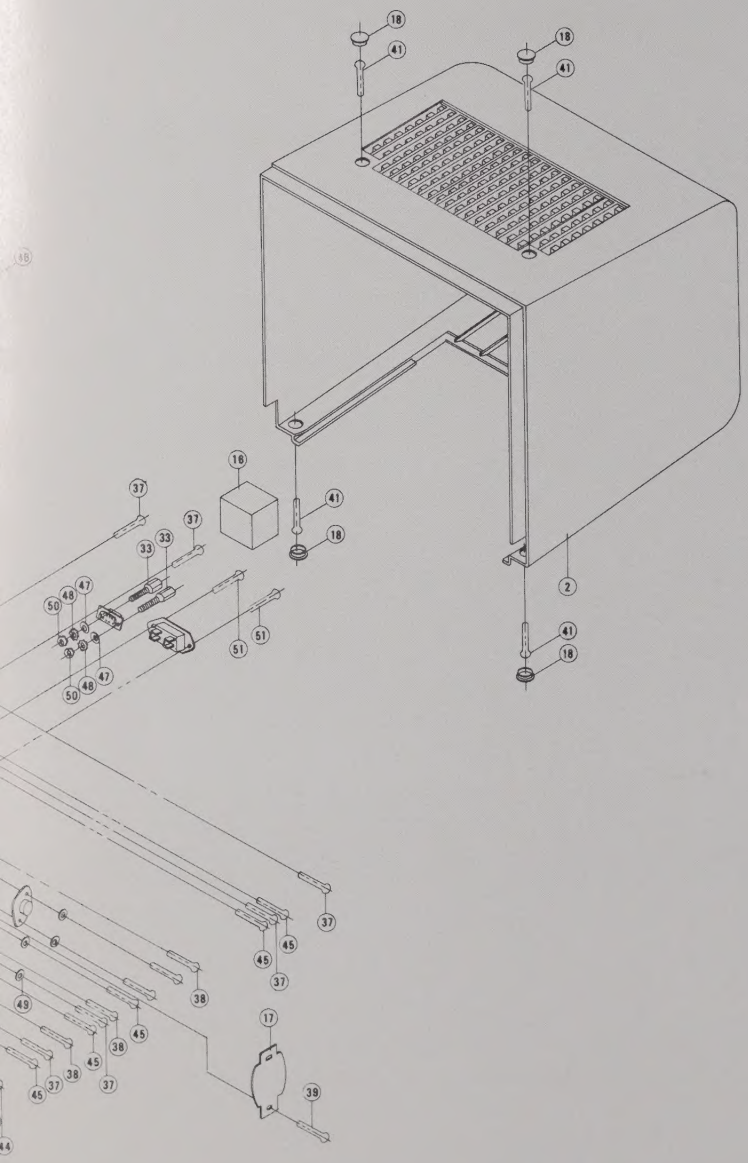
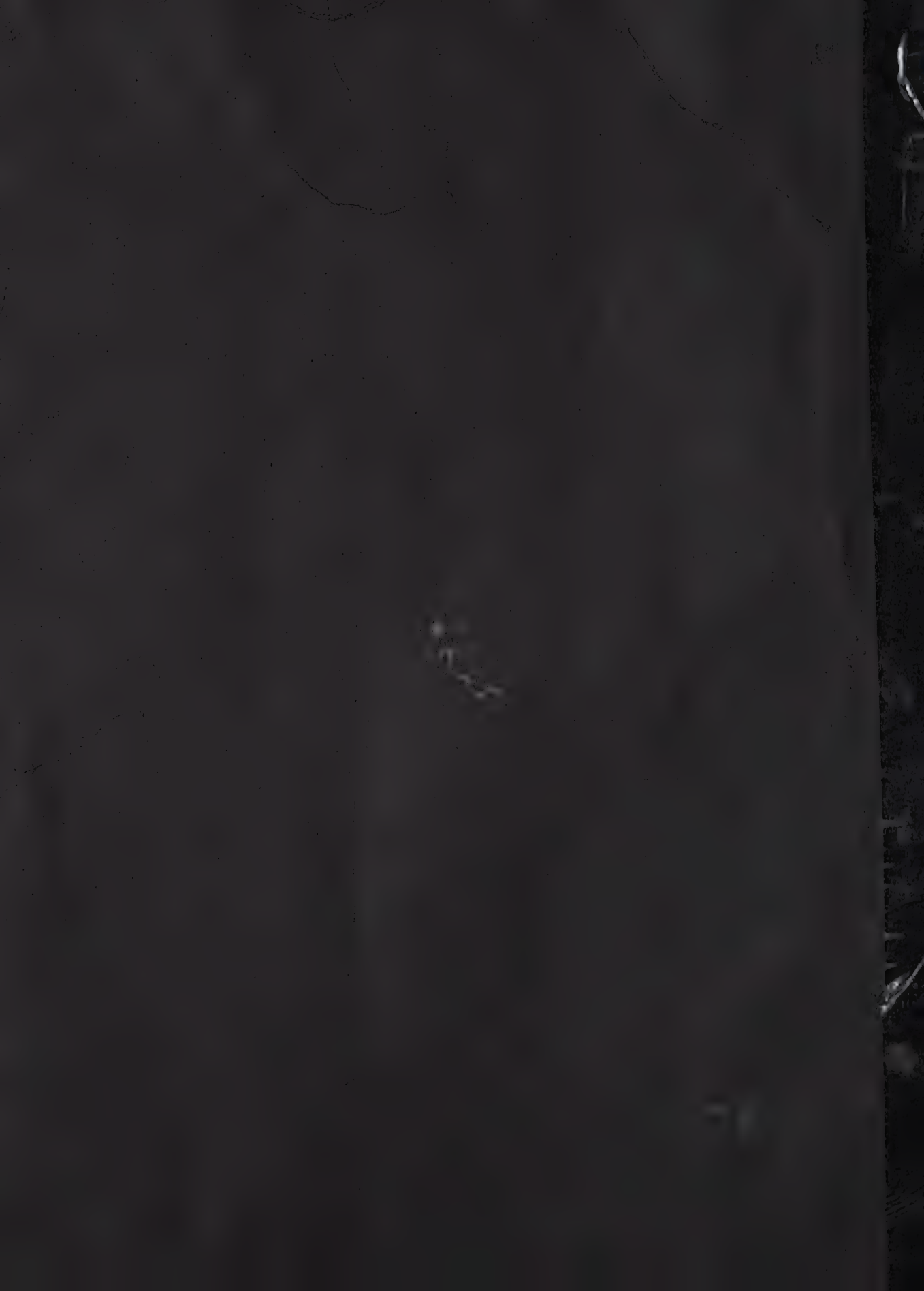
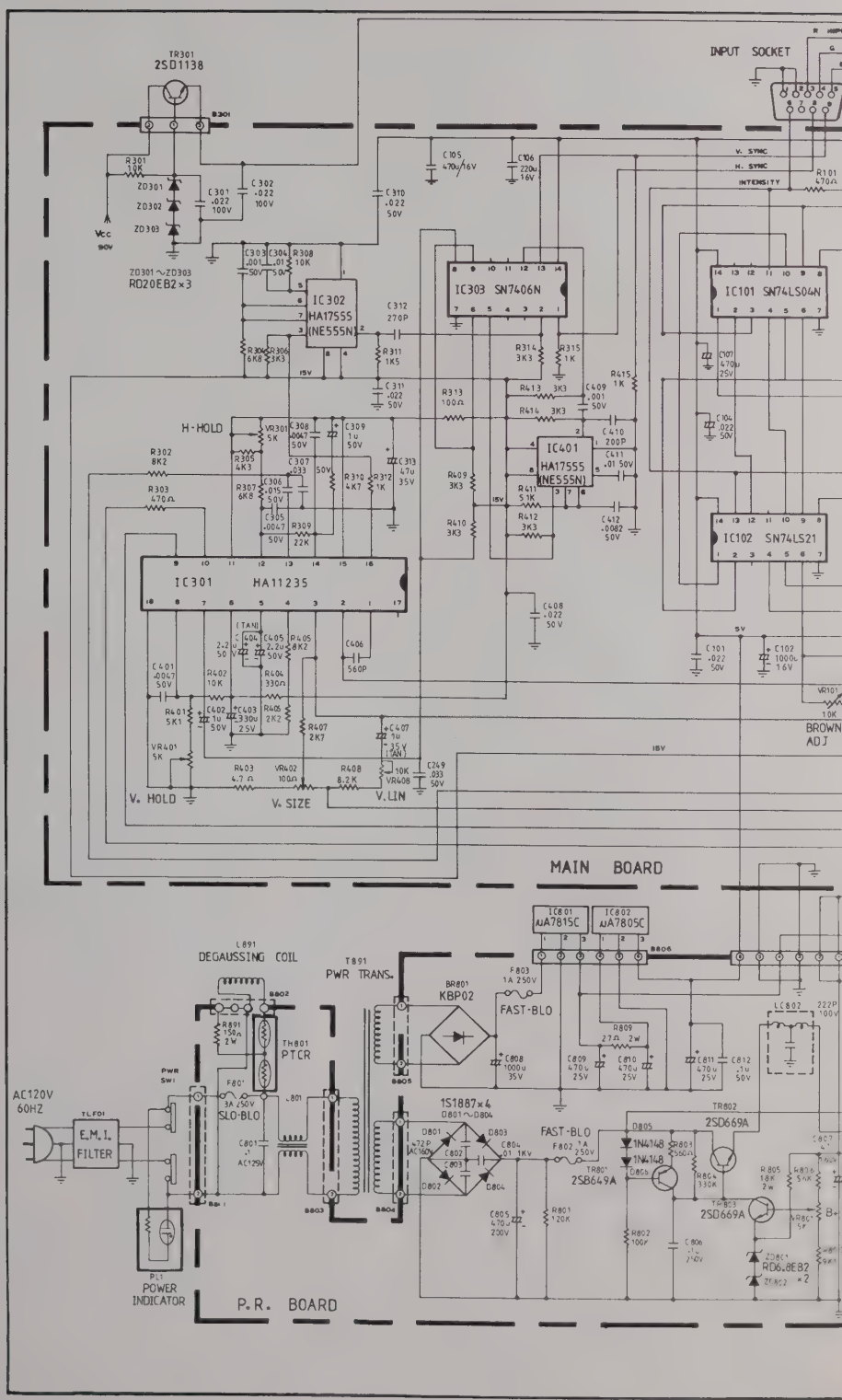
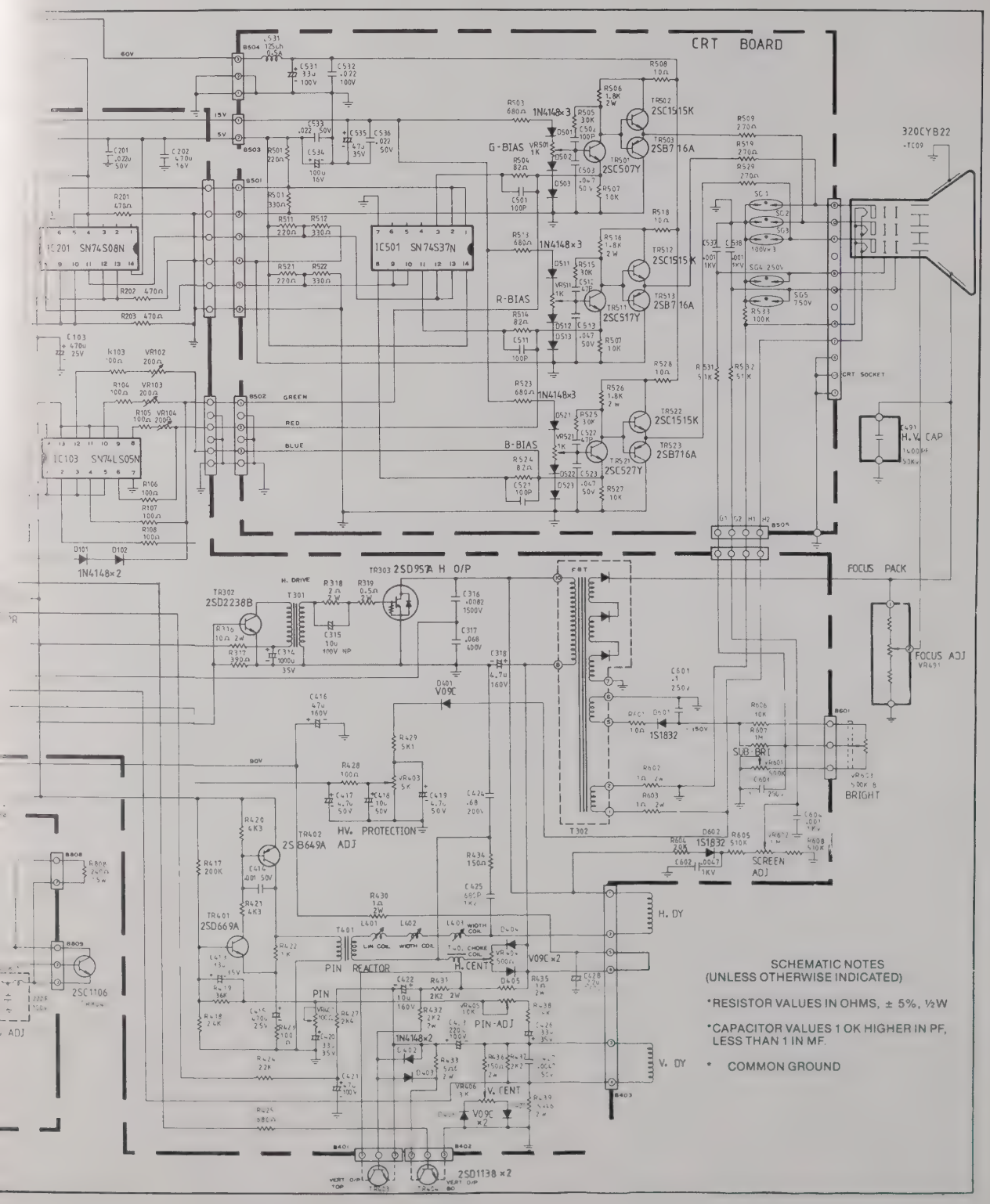
Exploded View





Schematic Diagram




CRT BOARD
320CYB22
-TC09
G-BIAS
R-BIAS
B-BIAS
1N4148×3
2SC1515K
2SB716A
2SC507Y
2SC517Y
2SC527Y
IC201 SN74S08N
IC501 SN74S37N
IC103 SN74LS05N
1N4148×2
GREEN
RED
BLUE
CRT SOCKET
H.V. CAP
FOCUS PACK
FOCUS ADJ
TR303 2SD957A H O/P
TR302 2SD2238B
H. DRIVE
T301
FBT
T302
V09C
1S1832
SUB CRT
BRIGHT
SCREEN ADJ
HV. PROTECTION
ADJ
TR402 2SB649A
TR401 2SD669A
2SC1106
PIN REACTOR
PIN
PIN-ADJ
H. DY
V. DY
H. CENT
V. CENT
V09C ×2
2SD1138 ×2
VERT O/P TOP
VERT O/P BOT
SCHEMATIC NOTES
(UNLESS OTHERWISE INDICATED)
•RESISTOR VALUES IN OHMS, ± 5%, ½W
•CAPACITOR VALUES 1 OK HIGHER IN PF, LESS THAN 1 IN MF.
• COMMON GROUND

NO RASTER APPEARS (POWER)

DOES 120V AC APPEAR BETWEEN THE CROSS POINT OF D801 & D803 AND THE CROSS POINT OF D802 & D804?

NO

- POWER CORD LOOSE
- FAILURE OF SW1
- F801 OPEN
- FAILURE OF DEGAUSSING CIRCUIT
- C801 IS SHORTED
- FAILURE OF T891
- FAILURE OF PL1
- L801 OPEN

F801 BROKEN

- D801-4 ARE SHORTED

YES

DOES 125V DC APPEAR BETWEEN THE C805 POSITIVE SIDE AND GROUND?

NO

- FAILURE OF C802-4
- FAILURE OF D801-4
- FAILURE OF C805
- FAILURE OF HOR O/P TRANSISTOR SHORTED
- FAILURE OF VERT O/P TRANSISTOR SHORTED

YES

DOES 90V REGULATOR VOLTAGE APPEAR BETWEEN THE TR804 EMITTER AND GROUND?

ABNORMAL 90V

- FAILURE OF IC301
- FAILURE OF H OSC CIRCUIT
- FAILURE OF H DRIVE CIRCUIT
- FAILURE OF HOR O/P CIRCUIT
- FAILURE OF H V PROTECTOR CIRCUIT
- FAILURE OF 90V POWER REGULATOR CIRCUIT

YES **NO OR LOW**

CHECK DC 15V B^+

- POWER REGULATOR OPEN

OK

ABNORMAL

- FAILURE OF IC801 OR BR801
- FUSE 803 OPEN
- C808 OR C809 IS SHORTED
- FAILURE OF T891

CHECK TR302 H DRIVE O/P?

- **ABNORMAL** → FAILURE OF T301 or TR302
  FAILURE OF IC301
- **OK**

CHECK H. OUTPUT TRANSISTOR

- **SHORTED** → FAILURE OF HOR O/P TRANSISTOR
- **ABNORMAL** → FAILURE OF FBT (T302)
  FAILURE OF C316 C317

NORMAL ABOUT 920VP-P

OK

CHECK CRT HEATER

- **NO** → CRT HEATER DISCONNECTED
  FAILURE OF HEATER CIRCUIT
  FAILURE OF FBT (T302)

OK

CHECK CRT SCREEN VOLTAGE (G2)

- **NORMAL 400V** → FAILURE CRT
- TOO LOW or O VOLT

FAILURE OF VR601, D602
R605, C604, C602, R604

CHECK CRT ANODE VOLTAGE

- **ABNORMAL** → FAILURE OF FBT (T302)
  FAILURE OF CRT

NO PICTURE

DOES 60V DC APPEAR BETWEEN TR301 EMITTER AND GROUND? — **NO** → FAILURE OF 90V DC FAILURE OF TR301 AND AMBIENT CIRCUIT

YES

DOES 5V DC APPEAR BETWEEN IC802 THIRD PIN AND GROUND? — **NO** → FAILURE OF IC802 AND AMBIENT CIRCUIT

YES

IS CONNECTION BASE IN OK? — **NO** → FAILURE OF B501, B503, B504

OK

IS TTL IC O/P VOLTAGE NORMAL? — **NO** → FAILURE OF IC101, IC102, IC103, IC201, IC501

OK

IS 15V DC AT B502? — **NO** → CHECK 15V DC LOOP CIRCUIT

OK

CHECK CRT CATHODE VOLTAGE — **ABNORMAL** → FAILURE OF TR501, TR502, TR503, TR511, TR512, TR513, TR521, TR522, TR523 AND AMBIENT CIRCUIT

OK

CHECK G1, G2 VOLTAGE — **ABNORMAL** → FAILURE OF G1, G2, CIRCUIT

OK

FAILURE OF CRT

NO VERTICAL SWEEP

CHECK IC 11TH PIN VOLTAGE — **ABNORMAL** — FAILURE OF IC301
FAILURE OF 15V DC SUPPLY LOOP

NORMAL 11.6V

CHECK IF 90V DC SUPPLY IS OK — **NO** — FAILURE OF 90V DC SUPPLY CIRCUIT

OK

CHECK TR404 & TR403 RELATIVE VOLTAGE — **ABNORMAL** — FAILURE OF TR403, TR404 AND AMBIENT CIRCUIT

NO — O/P VOLTAGE ABOUT 45V DC OK — FAILURE OF C423
FAILURE OF DY VERTICAL COI

LOOSE BASE 401 & BASE 402

UNSTABLE VERTICAL

CHECK FREQUENCY VARIATION WITH ROTATING V-HOLD — 60Hz APPEARS BUT UNSTABLE

OSCILLATION FREQUENCY SHIFTS — FAILURE OF IC303
FAILURE OF IC301 AND AMBIENT CIRCUIT

FAILURE OF IC301, IC303
FAILURE OF C404, VR401 AND AMBIENT CIRCUIT

UNSTABLE HORIZONTAL

CHECK FREQUENCY VARIATION WITH ROTATING H-HOLD

LACK OF HORIZONTAL SYNC

FAILURE OF IC301
FAILURE OF C302

OSCILLATION FREQUENCY SHIFTS

FAILURE OF IC301
FAILURE OF VR301, R305, R307
FAILURE OF C305

ABNORMAL BRIGHTNESS OF SCREEN

CHECK 60V VOLTAGE LINE

ABNORMAL

FAILURE OF 60V REGULATOR
FAILURE OF TR501, TR502
TR503, TR511, TR512, TR513
TR521, TR522, TR523, AND
AMBIENT CIRCUIT

OK

CHECK G1 VOLTAGE

ABNORMAL

FAILURE OF G1 VOLTAGE SUPPLY CIRCUIT

ABOUT 60V OK

CHECK G2 VOLTAGE

ABNORMAL

FAILURE OF G2 VOLTAGE SUPPLY CIRCUIT

ABOUT 380V OK

FAILURE OF HIGH VOLTAGE CIRCUIT
FAILURE OF CRT

PICTURE ABNORMAL

CHECK PINS 2, 4, 6, 8, 10
VOLTAGE OF IC101

- **LOW** → FAILURE OF IC101
  FAILURE OF AMBIENT CIRCUIT
- **HIGH**

CHECK PINS 6, 8, 11
VOLTAGE OF IC201

- **HIGH** → FAILURE OF IC201
  FAILURE OF AMBIENT CIRCUIT
- **LOW**

CHECK PINS 6, 8, VOLTAGE
OF IC102

- **HIGH** → FAILURE OF IC102
  FAILURE OF AMBIENT CIRCUIT
- **LOW**

CHECK PINS 2, 4, 6, 8, 10
12 VOLTAGE OF IC103

- **LOW** → FAILURE OF IC103
  FAILURE OF AMBIENT CIRCUIT
- **HIGH**

CHECK 3, 8, 11 VOLTAGE OF
IC501

- **LOW** → FAILURE OF IC501
  FAILURE OF AMBIENT CIRCUIT
- **HIGH**

CHECK O/P TRANSISTOR BIAS

- **ABNORMAL** → FAILURE OF TR501, TR502
  TR503, TR511, TR512
  TR513, TR521, TR522, TR523
  FAILURE OF AMBIENT CIRCUIT
- **OK**

FAILURE OF CRT

PICTURE PINCUSHIONING OR BARREL DISTORTION

DOES PIN & BARREL DISTORTION APPEAR AT THE CRT DISPLAY

YES → ADJ-PIN, ADJ VR

OK

OK ← CHECK TR402 TR401 VOLTAGE ← **NO**

FAILURE OF T401

ABNORMAL

FAILURE OF TR402, TR401
FAILURE OF AMBIENT CIRCUIT

FAILURE OF C426
FAILURE OF R438
FAILURE OF VR405
FAILURE OF R426
FAILURE OF C420
FAILURE OF C413, R419
FAILURE OF R418

PICTURE CENTERING DEVIATION

DOES VERTICAL POSITION SHIFT OR HORIZONTAL POSITION SHIFT

VERTICAL → FAILURE OF D406, D407
FAILURE OF VR406
FAILURE OF R436

HORIZONTAL

CHECK 90V DC

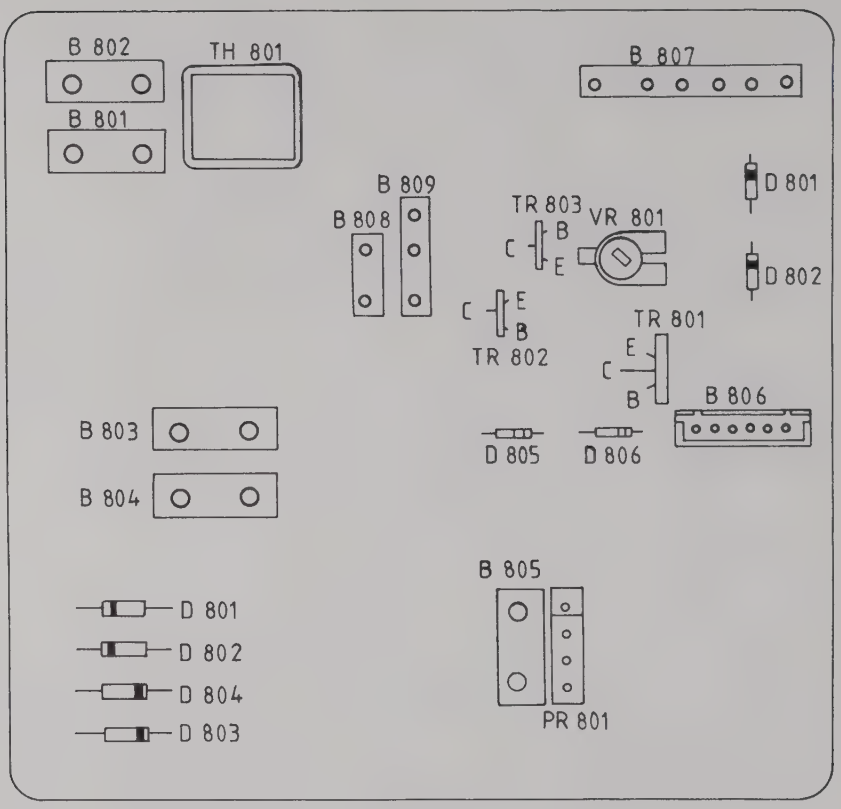
ABNORMAL → FAILURE OF 90V DC LOOP CIRCUIT

OK

FAILURE OF D404, D405
FAILURE OF VR404
FAILURE OF T402
FAILURE OF R434, C425

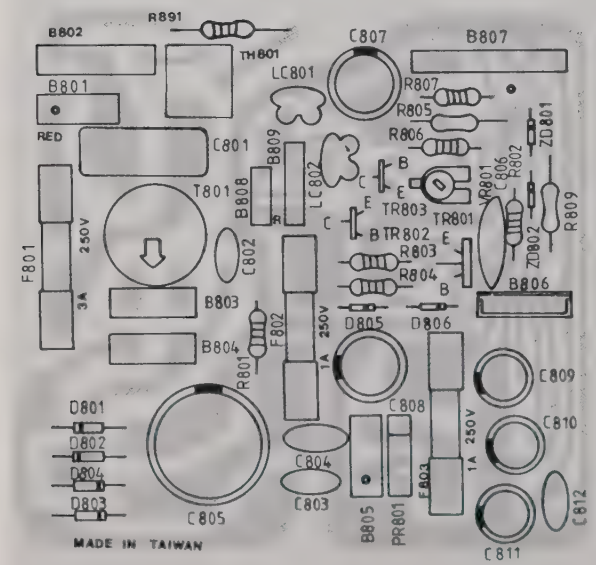
FAILURE OF R302, R303
FAILURE OF C307, R304
FAILURE OF C306
FAILURE OF IC301
FAILURE OF IC302 AND AMBIENT CIRCUIT

PWR Board Layout

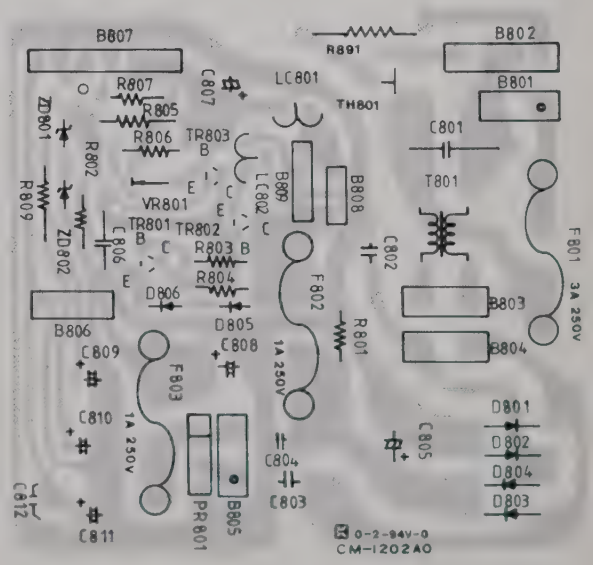


PWR PC Board

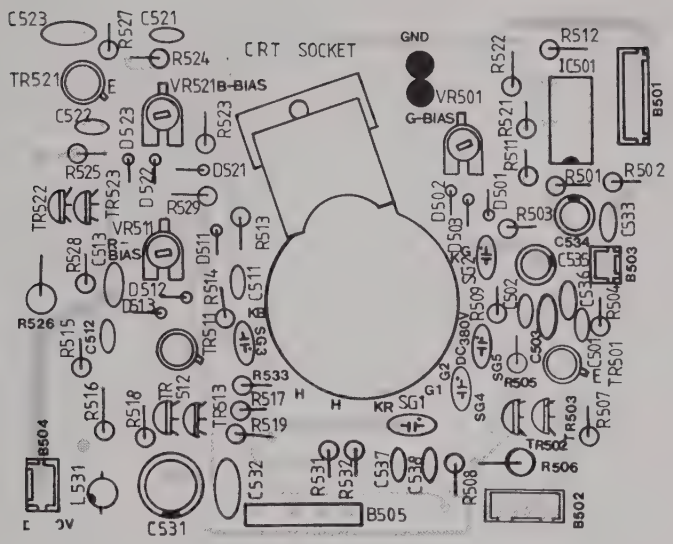
PWR PCB (TOP VIEW)



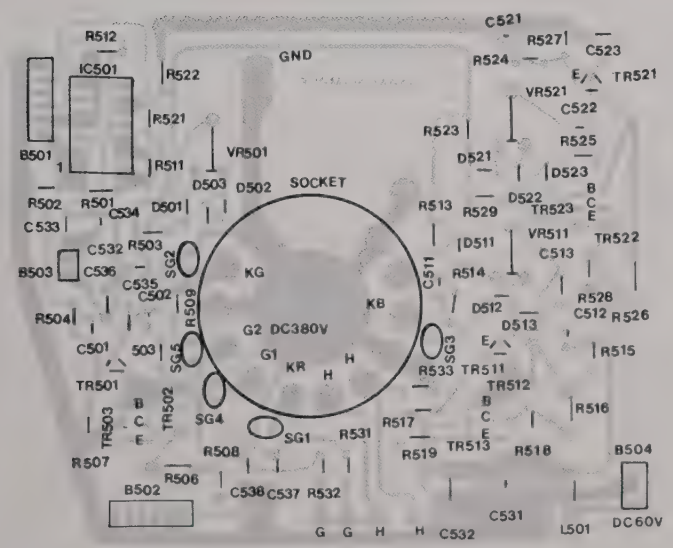
PWR PCB (BOTTOM VIEW)



CRT PCB (TOP VIEW)

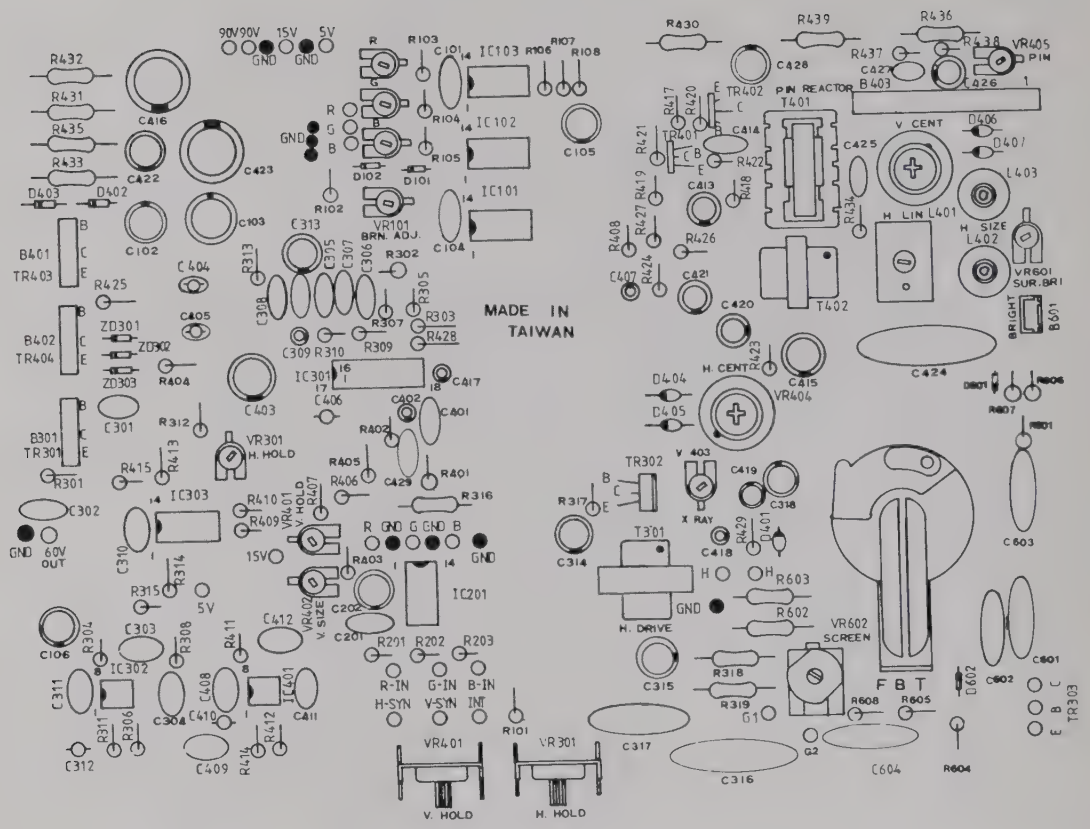


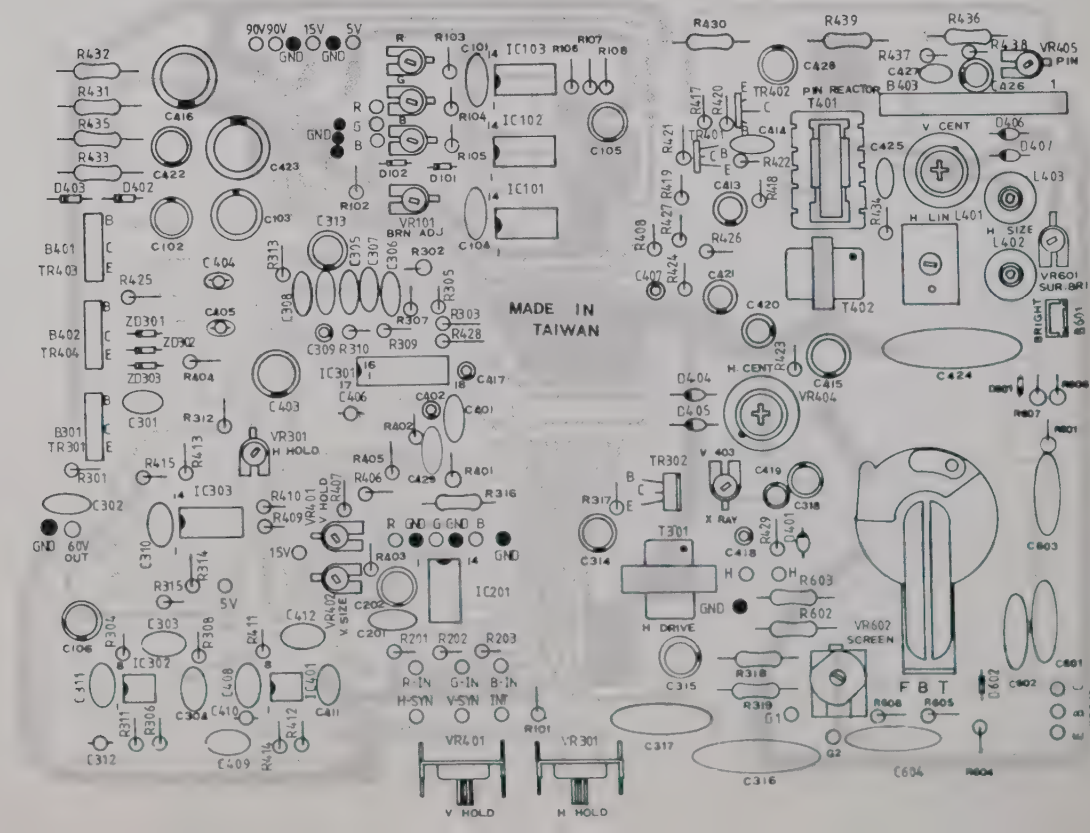
CRT PCB (BOTTOM VIEW)



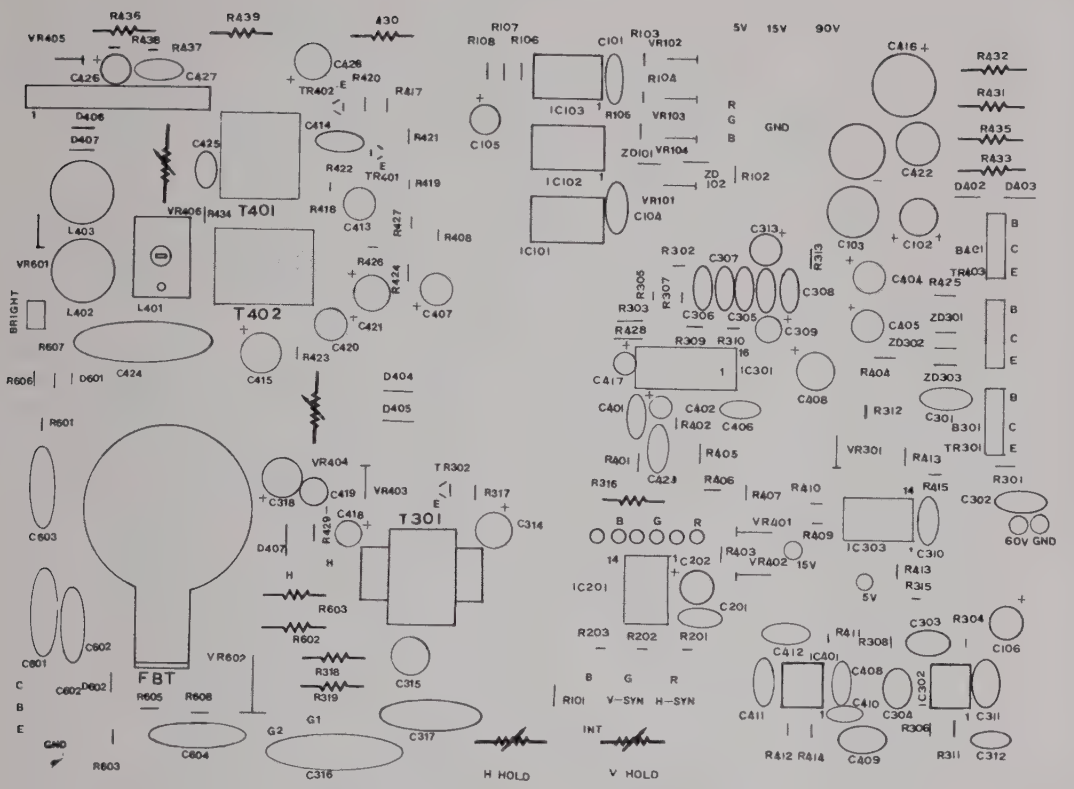
Main PC Board Layout

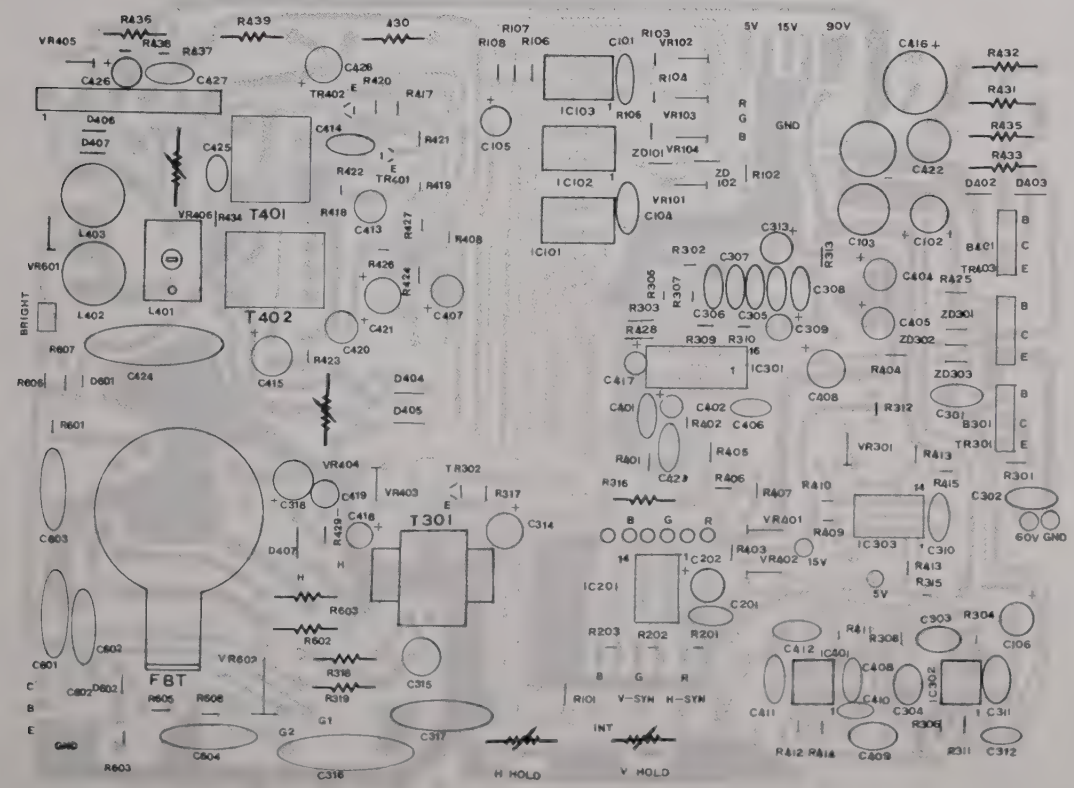
MAIN PCB (TOP VIEW)





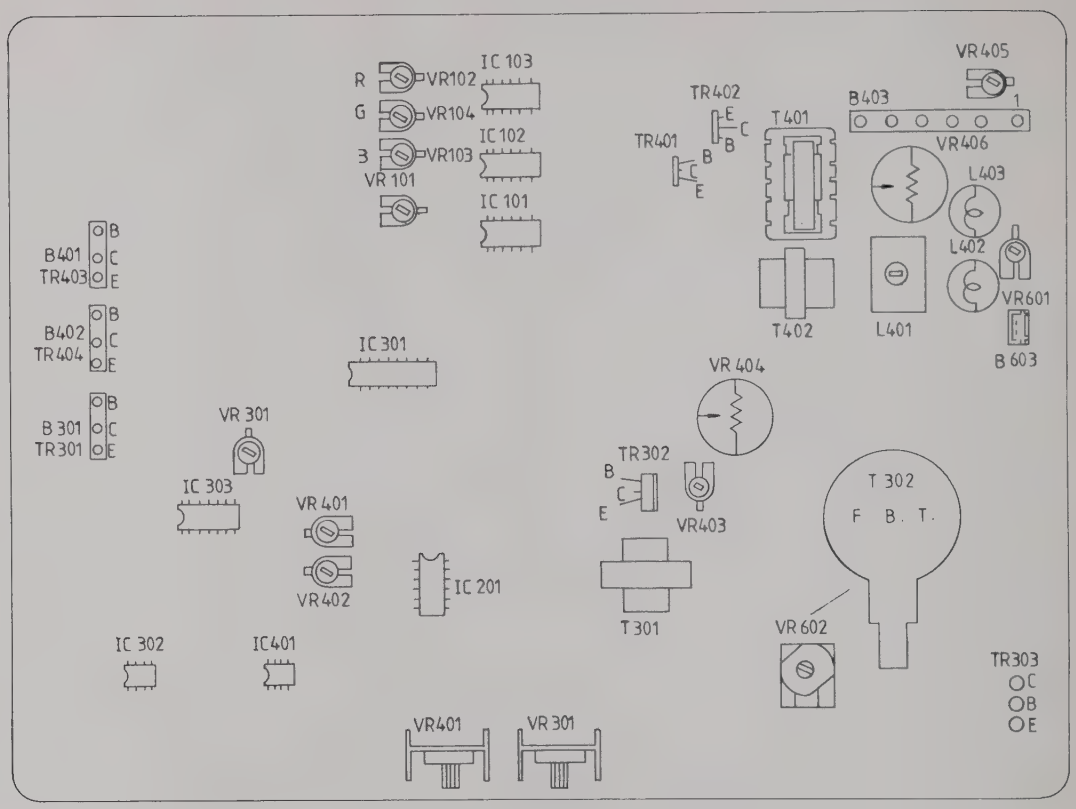
MAIN PCB (BOTTOM VIEW)





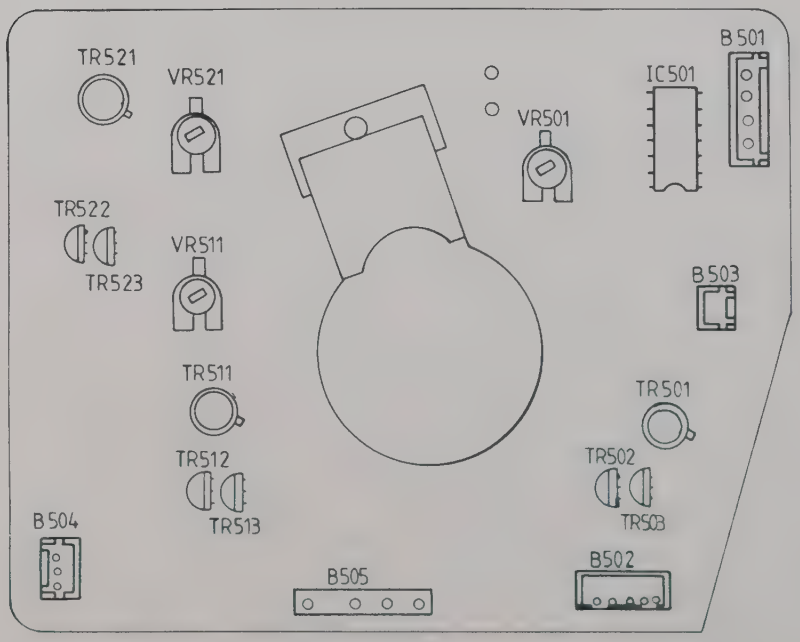
Chassis Layout

MAJOR COMPONENTS



CRT Board Layout

MAJOR COMPONENTS



SAFETY NOTE—Components marked with a ▲ have special characteristics important to safety. Before replacing any of these components, read carefully the SAFETY NOTICE on page 6 of this Service Manual. Don't degrade the safety of the set through improper servicing. Components marked with a △ are related to the X-ray.

HOW TO ORDER REPLACEMENT PARTS—To have your order filled promptly and correctly, please furnish the following information. 1. MODEL NUMBER 2. REF. NO. 3. PART NO. 4. DESCRIPTION

REF NO.	PART NO.	DESCRIPTION
	PICTURE TUBE WITH DEFLECTION YOKE	
▲△	CM1202A030018	Picture Tube W DY (320CYB22-TC09)
	TRANSISTORS	
TR301	`1530000027HT8	2SD1138C
TR303 ▲△	CM1202A010106	2SD957A
TR403	1530000027HT8	2SD1138C
TR404	1530000027HT8	2SD1138C
TR804	1530000020NE5	2SC1106Q
TR302	CM1202A010025	2SC2238B
TR401	CM1202A010041	2SD669A
TR402	1510000010HT8	2SB649AC
TR501	CM1202A010068	2SC507Y
TR502	CM1202A010076	2SC1215K
TR503	CM1202A010084	2SB716A
TR511	CM1202A010068	2SC507Y
TR512	CM1202A010076	2S1515K
TR513	CM1202A010084	2SB716A
TR521	CM1202A010068	2SC507Y
TR522	CM1202A010076	2SC1515K
TR523	CM1202A010084	2SC716A
TR801 ▲△	1510000010HT8	2SB649AC
TR802 ▲	CM1202A010041	2SD669A
TR803	CM1202A010041	2SD669A
	INTEGRATED CIRCUITS	
IC801	215030001TE03	μA7815C
IC802	215030001TE08	μA7805C
IC101	237140005TE06	SN74LS04N
IC102	CM1202A020012	SN74LS21N
IC103	CM1202A020055	SN74LS05N
IC201	237140002TE00	SN74LS08N
IC301 ▲	213200000HT09	HA11235
IC302	271080000TE01	NE555P
IC303	237140012TE04	SN7406N
IC401	271080000TEO1	NE555P
IC501	CM1202A020039	SN74LS37N
	DIODES	
D101	1110000009PH4	Diode, 1N4148
D102	1110000009PH4	Diode, 1N4148
D401	1120000020HT7	Diode, V09C
D402	1110000009PH4	Diode, 1N4148
D403	1110000009PH4	Diode, 1N4148
D404	1120000020HT7	Diode, V09C
D405	1120000020HT7	Diode, V09C

REF NO.	PART NO.	DESCRIPTION
	DIODES	
D406	1120000020HT7	Diode, V09C
D407	1120000020HT7	Diode, V09C
D501	1110000009PH4	Diode, 1N4148
D502	1110000009PH4	Diode, 1N4148
D503	1110000009PH4	Diode, 1N4148
D511	1110000009PH4	Diode, 1N4148
D512	1110000009PH4	Diode, 1N4148
D513	1110000009PH4	Diode, 1N4148
D521	1110000009PH4	Diode, 1N4148
D522	1110000009PH4	Diode, 1N4148
D523	1110000009PH4	Diode, 1N4148
D601	1120000005TS3	Rectifier, 1S1832
D602	1120000005TS3	Recrifier, 1S1832
D801	1120000007TS6	Rectifier, 1S1887
D802	1120000007TS6	Rectifier, 1S1887
D803	1120000007TS6	Rectifier, 1S1887
D804	1120000007TS6	Rectifier, 1S1887
D805	1110000009PH4	Diode, 1N4148
D806	1110000009PH4	Diode, 1N4148
ZD301	1142000500NE2	Zener, RD20EB2
ZD302	1142000500NE2	Zener, RD20EB2
ZD303	1142000500NE2	Zener, RD20EB2
ZD901	1140680500NE3	Zener, 6.8V
ZD902	1140680500NE3	Zener, 6.8V
	CAPACITORS	
C101	336500223K022	PE, 50V, 0.022μF, ±10%.
C102	333160102TG18	E/C, 16V, 1000μF, +100%, −10%.
C103	333250471TG14	E/C, 25V, 470μF, +100%, −10%.
C104	336500223K022	PE, 50V, 0.022μF, ±10%.
C105	333160471TG15	E/C, 16V, 470μF, +100%, −10%.
C106	333160221TG15	E/C, 16V, 220μF, +100%, −10%.
C107	333160471TG15	E/C, 16V, 470μF, +100%, −10%.
C201	336500223K022	PE, 50V, 0.022μF, ±10%.
C202	333160471TG15	E/C, 16V, 470μF, +100%, −10%.
C301	336101223J025	PEN, 100V, 0.022μF, ±5%.
C302	336101223J025	PEN, 100V, 0.022μF, ±5%.
C303	336500102J028	PEN, 50V, 0.001μF, ±5%.
C304	336500103K020	PE, 50V, 0.01μF, ±5%.
C305	336500472J021	PEN, 50V, 0.0047μF, ±5%.
C306	336500153K022	PE 50V, 0.015μF, ±10%.
C307	336500333J024	PEN, 50V, 0.033μF, ±5%.
C308	336500472J021	PEN, 0.0047μF, ±5%. 50V.
C309	333500010TC11	E/C, 50V, 1μF, ±10%.
C310	336500223K022	PE, 50V, 0.022μF, ±10%.
C311	336500223K022	PE, 50V, 0.022μF, ±10%.
C312	336500271J052	PS, 50V, 270PF, ±5%.
C313 ▲△	333350470TC10	EC, 35V, 47μF, ±100%, −10%
C314 ▲△	333250102TC17	E/C, 25V, 1000μF, +100%, −10%
C315	331101100MG18	E/C, 100V, 10μF, ±20%
C316	CM1202A030441	PP, 1500V, 0.0082μF
C317	CM1202A040450	PP, 400V, 0.068μF
C318	3331614R7TG15	E/C, 160V, 4.7μF, +75%, −10%
C401	336500472J021	PEN, 50V, 0.0047μF, ±5%

REF NO.	PART NO.	DESCRIPTION
	CAPACITORS	
C402	333500010TG11	E/C, 50V, 1μF, +100%, −10%
C403	333250331TG12	E/C, 25V, 330μF, +100%, −10%
C404	3345002R2KC17	TAN, 50V, 2.2μF, ±10%
C405	3345002R2KC17	TAN, 50V, 2.2μF, ±10%
C406	336500561J059	PS, 50V, 560PF, ±5%
C407	3345002R2KC17	TAN, 50V, 2.2μF, ±10%
C408	336500223K022	PE, 50V, 0.022μF, ±10%
C409	336500102J028	PEN, 50V, 0.001μF, ±5%
C410	336500201J051	PS, 50V, 200P, ±5%
C411	336500103K020	PE, 50V, 0.01μF, ±10%
C412	336500822J022	PE, 50V, 0.0082μF, ±5%
C413	333350339TC18	EC, 35V, 33μF, +100%, −10%
C414	336500102J028	PEN, 50V, 0.001μF, ±5%
C415	333250471TC14	E/C, 25V, 470μF, +100%, −10%
C416	333161470TG12	EC, 160V, 47μF, +100%, −10%
C417	3335004R7TG15	EC, 50V, 4.7μF, +100%, −10%
C418	333500100TC10	EC, 50V, 10μF, +100%, −10%
C419	3335004R7TC15	EC, 50V, 4.7μF, +100%, −10%
C420	333350330TG18	EC, 35V, 33μF, +100%, −10%
C421	333101470TC11	EC, 100V, 47μF, +100%, −10%
C422	333161100TC10	EC, 160V, 10μF
C423	333101221TC17	EC, 100V, 220μF, +100%, −10%
C424	CM1202A030212	PP, 200, 0.68μF
C425	338102681K0B5	CC, 1KV, 680P
C426	333350330TC18	EC, 35V, 33μF, +100%, −10%
C427	336500472J021	PEN, 50V, 0.0047μF, ±5%.
C428	333161220TC12	E/C, 160V, 22μF, +100%, −10%.
C429	336500333J024	PEN, 50V, 0.033μF, ±5%.
C501	337500101KSL4	CC, 50V, 100P, ±10% (SL)
C502	337500101KSL4	CC, 50V, 100P, ±10% (SL)
C503	3385004734OB4	CC, 50V, 47000PF, +80%, −20%.
C511	337500101KSL4	CC, 50V, 100P, ±10% (SL)
C512	337500470JCH1	CC, 50V, 47P, ±5% (NPO)
C513	338500473Z0B4	CC, 50V, 47000PF, +80%, −20%.
C521	337500101KSL4	CC, 50V, 100P, ±10% (SL)
C522	337500470JCH1	CC, 50V, 47P, ±5% (NPO)
C523	338500473Z0B4	CC, 50V, 47000PF, +80%, −20%.
C531	333101330TC10	EC, 100V, 33μF, +100%, −10%.
C532	336101223J025	PEN, 100V, 0.022μF, ±5%.
C533	3385002232ZF7	CC, 50V, 0.022μF, +80%, −20%.
C534	333160101TC12	E/C, 16V, 100μF, +100%, −10%.
C535	333350470TC10	EC, 35V, 47μF, +100%, −10%.
C536	338500223Z0F7	C, 50V, 0.022μF, +80%, −20%.
C537	338102102K0B6	CC, 1KV, 0.001μF, ±10%
C538	338102102K0B6	CC, 1KV, 0.001μF, ±10%.
C601	336251104K032	PP, 250V, 0.1μF, ±10%.
C602	336102472J031	PP, 1KV, 00.0047μF, ±5%.
C603	336251104K032	PP, 250V, 0.1μF, ±10%.
C604	336102102J038	PP, 1KV, 0.001μF, ±5%.
C801 ▲	33612B104M074	MPE, 125V, 0.1μF, ±20%.
C802 ▲	336161472T071	CC, 160V (AC), 0.0047μF.
C803 ▲	336161472T071	CC, 160V (AC), 00.0047μF.
C804	338102103ZCE8	OC, 1KV, 0.01μF, +80%, −20%.
C805 ▲	333201471TG18	E/C, 200V, 470μF, +100%, −10%.
C806	336251104K032	PP, 250V, 0.1μF, ±10%
C807	333161470TG12	EC, 160V, 47μF, +100%, −10%.

REF NO.	PART NO.	DESCRIPTION
	CAPACITORS	
C808	333350102TG18	EC, 35V, 1000μF, +100%, −10%.
C809	333250471TC14	E/C, 25V, 470μF, +100%, −10%.
C810	333250471TG14	E/C, 25V, 470μF, +100%, −10%.
C811	333250471TG14	E/C, 25V, 470μF, +100%, −10%.
C812	338500104Z0B7	CC, 50V, 0.1μF, +80%, −20%.
	RESISTORS	
R101	311R2471JHC17	C. F. RES. ½W, 470 ohm, ±5%.
R102	311R2102JHC18	C. F. RES. ½W, 1K ohm, ±5%.
R103	311R2101JHC13	C. F. RES. ½W, 100 ohm, ±5%.
R104	311R2101JHC13	C. F. RES. ½W, 100 ohm, ±5%.
R105	311R2101JHC13	C. F. RES. ½W, 100 ohm, ±5%.
R106	311R2101JHC13	C. F. RES. ½W, 100 ohm, ±5%.
R107	311R2101JHC13	C. F. RES. ½W, 100 ohm, ±5%.
R108	311R2101JHC13	C. F. RES. ½W, 100 ohm, ±5%.
R201	311R2471JHC17	C. F. RES. ½W, 470 ohm, ±5%.
R202	311R2471JHC17	C. F. RES. ½W, 470 ohm, ±5%.
R203	311R2471JHC17	C. F. RES. ½W, 470 ohm, ±5%.
R301	311R2103JHC12	C. F. RES. ½W, 10K ohm, ±5%.
R302	311R2822JHC14	C. F. RES. ½W, 8.2K ohm, ±5%.
R303	311R2471JHC17	C. F. RES. ½W, 470 ohm, ±5%.
R304	311R2682JHC11	C. F. RES. ½W, 6.8K ohm, ±5%.
R305	311R2432JHC17	C. F. RES. ½W, 4.3K ohm, ±5%.
R306	311R2332JHC14	C. F. RES. ½W, 3.3K ohm, ±5%.
R307	311R2682JHC11	C. F. RES. ½W, 6.8K ohm, ±5%.
R308	311R2103JHC12	C. F. RES. ½W, 10K ohm, ±5%.
R309	311R2223JHC12	C. F. RES. ½W, 22K ohm, ±5%.
R310	311R2472JHC11	C. F. RES. ½W, 4.7K ohm, ±5%.
R311	311R2152JHC16	C. F. RES. ½W, 1.5K ohm, ±5%.
R312	311R2102JHC18	C. F. RES. ½W, 1K ohm, ±5%.
R313	311R2101JHC18	C. F. RES. ½W, 100 ohm, ±5%.
R314	311R2332JHC14	C. F. RES. ½W, 3.3K ohm, ±5%.
R315	311R2102JHC18	C. F. RES. ½W, 1K ohm, ±5%.
R316	31502100JHC11	C. F. RES. 2W, 10 ohm, ±5%.
R317	311R2391JHC11	C. F. RES. ½W, 390 ohm, ±5%.
R318	31502020JHC16	OMF, 2W, 2 ohm, ±5%.
R319	31502R50JHC19	OMF, 2W, 0.5 ohm, ±5%.
R401	311R2512JHC12	C. F. RES. ½W, 5.1K ohm, ±5%.
R402	311R2103JHC12	C. F. RES. ½W, 10K ohm, ±5%.
R403	311R2220JHC19	C. F. RES. ½W, 22 ohm, ±5%.
R404	311R2331JHC10	C. F. RES. ½W, 22 330 ohm, ±5%.
R405	211R2822JHC14	C. F. RES. ½W, 8.2K ohm, ±5%.
R406	311R2222JHC18	C. F. RES. ½W, 2.2K ohm, ±5%.
R407	311R2272JHC16	C. F. RES. ½W, 2.7K ohm, 25%.
R408	311R2133JHC13	C. F. RES. ½W, 13K ohm, ±5%.
R409	311R2332JHC14	C. F. RES. ½W, 3.3K ohm, ±5%.
R410	311R2332JHC14	C. F. RES. ½W, 3.3K ohm, ±5%.
R411	311R2513JHC17	C. F. RES. ½W, 51K ohm, ±5%.
R412	311R2332JHC14	C. F. RES. ½W, 3.3K ohm, ±5%.
R413	311R2332JHC14	C. F. RES. ½W, 3.3K ohm, ±5%.
R414	311R2332JHC14	C. F. RES. ½W, 3.3K ohm, ±5%.
R415	311R2102JHC18	C. F. RES. ½W, 1K ohm, ±5%.
R417	311R2204JHC10	C. F. RES. ½W, 200K ohm, ±5%.
R418	311R2243JHC10	C. F. RES. ½W, 24K ohm, ±5%.
R419	311R2363JHC10	C. F. RES. ½W, 36K ohm, ±5%.

REF NO.	PART NO.	DESCRIPTION
		RESISTORS
R420	311R2432JHC17	C. F. RES. ½W, 4.3K ohm, ±5%.
R421	311R2432JHC17	C. F. RES. ½W, 4.3K ohm, ±5%.
R422	311R2102JHC18	C. F. RES. ½W, 1K ohm, ±5%.
R423	311R2101JHC13	C. F. RES. ½W, 100 ohm, ±5%.
R424	311R2223JHC12	C. F. RES. ½W, 22K, ±5%.
R425	311R2681JHC16	C. F. RES. ½W, 680 ohm, ±5%.
R426	311R2750JHC13	C. F. RES. ½W, 75 ohm, ±5%.
R427	311R2912JHC13	C. F. RES. ½W, 9.1K ohm, ±5%.
R428	311R2101JHC13	C. F. RES. ½W, 100 ohm ±5%.
R429	311R2512JHC12	C. F. RES. ½W, 5.1K ohm, ±5%.
R430	31502010JHC12	OMF. 2W, 1 ohm, ±5%.
R431	31502222JHC11	OMF. 2W, 2.2K ohm ±5%.
R432	31502222JHC11	OMF. 2W, 2.2K ohm, ±5%.
R433	315025R6JHC19	OMF. 2W, 5.6 ohm, ±5%.
R434	311R2151JHC11	C. F. RES. ½W, 150 ohm, ±5%.
R435	31502010JHC12	OMF. 2W, 1 ohm, ±5%.
R436	31502151JHC14	OMF. 2W, 150 ohm, ±5%.
R437	311R2222JHC18	C. F. RES. ½W, 2.2K ohm, ±5%.
R438	311R2822JHC14	C. F. RES. ½W, 8.2K ohm, ±5%.
R439	315025R6JHC19	OMF. 2W. 5.6 ohm, ±5%.
R501	311R2221JHC13	C. F. RES. ½W, 220 ohm, ±5%.
R502	311R2331JHC10	C. F. RES. ½W, 330 ohm, ±5%.
R503	311R2681JHC16	C. F. RES. ½W, 680 ohm, ±5%.
R504	311R2820JHC15	C. F. RES. ½W, 82 ohm, ±5%.
R505	311R2303JHC18	C. F. RES. ½W, 30K ohm, ±5%.
R506	31502182JHC10	OMF. 2W, 1.8K ohm, ±5%.
R507	311R2103JHC12	C. F. RES. ½W, 10K ohm, ±5%.
R508	311R2100JHC19	C. F. RES. ½W, 10 ohm, ±5%.
R509	311R2271JHC11	C. F. RES. ½W, 270 ohm, ±5%.
R511	311R2221JHC13	C. F. RES. ½W, 220 ohm ±5%.
R512	311R2331JHC10	C. F. RES. ½W, 330 ohm ±5%.
R513	311R2681JHC16	C. F. RES. ½W, 680 ohm, ±5%.
R514	311R2820JHC15	C. F. RES. ½W, 82 ohm, ±5%.
R515	311R2303JHC18	C. F. RES. ½W, 30 ohm, ±5%.
R516	31502182JHC10	OMF. 2W, 1.8K ohm, ±5%.
R517	311R2103JHC12	C.F. ½W, 1K ohm, ±5%.
R518	311R2100JHC19	C. F. ½W, 10 ohm, ±5%.
R519	311R2271JHC11	C. F. ½W, 270 ohm, ±5%.
R521	311R2221JHC13	C. F. ½W, 220 ohm, ±5%.
R522	311R2331JHC10	C. F. ½W, 330 ohm, ±5%.
R523	311R2681JHC16	C. F. ½W, 680 ohm, ±5%.
R524	311R2820JHC15	C. F. ½W, 82 ohm, ±5%.
R525	311R2303JHC18	C. F. ½W, 30K ohm, ±5%.
R526	31502182JHC10	OMF. ½W 1.8K ohm, ±5%.
R527	311R2103JHC12	C. F. RES. ½W, 10K ohm, ±5%.
R528	311R2100JHC19	C. F. RES. ½W, 10 ohm, ±5%.
R529	311R2271JHC11	C. F. RES. ½W, 270 ohm ±5%.
R531	311R2513JHC17	C. F. RES. ½W, 51K ohm, ±5%.
R532	311R2513JHC17	C. F. RES. ½W, 51K ohm, ±5%.
R533	311R2513JHC17	C. F. RES. ½W, 51K ohm, ±5%.
R601	311R2100JHC19	C. F. RES. ½W, 10 ohm, ±5%.
R602	31502010JHC12	OMF. 2W, 1 ohm, ±5%.
R603	31502010JHC12	OMF. 2W, 1 ohm, ±5%.
R604	311R2203JHC15	C. F. RES. ½W, 20K ohm, ±5%.
R605	311R2514JHC11	C. F. RES. ½W, 510K ohm, ±5%.
R606	311R2103JHC12	C. F. RES. ½W, 10K ohm, ±5%.
R607	311R2105JHC11	C. F. RES. ½W, 1M ohm, ±5%.

REF NO.	PART NO.	DESCRIPTION
	RESISTORS	
R608	311R2514JHC11	C. F. RES. ½W, 510K ohm, ±5%.
R801	311R2124JHC11	C. F. RES. ½W, 120K ohm, ±5%.
R802	311R2104JHC17	C. F. RES. ½W, 100K ohm, ±5%.
R803	311R2561JHC16	C. F. RES. 560 ohm, ±5%.
R804	311R2334JHC13	C. F. RES. ½W, 330K ohm, ±5%.
R805	31502183JHC14	OMF. 2W, 18K ohm, ±5%.
R806	311R2563JHC15	C. F. ½W, 56K ohm, ±5%.
R807	311R2912JHC13	C. F. ½W, 9.1K ohm, ±5%.
R809	31502270JHC10	OMF. 2W, 27 ohm, ±5%.
R891	31502151JHF16	OMF. 2W, 150 ohm, ±5, 25m/m
	SWITCHES & VARIABLE RESISTORS	
SW1 ▲△	3775221700016	POWER SWITCH
VR491 ▲	CM1202A030425	FOCUS SCR
VR603	321B5B55B0010	VR B 500K ohm
VR101	32781B14H3011	V.S. VR. B10K (8m/m H TYPE)
VR102	32781B22H3015	V.S. VR. B200K (8m/m H TYPE)
VR103	32781B22H3015	V.S. VR. B200K (8m/m H TYPE)
VR104	32781B22H3015	V.S. VR. B200K (8m/m H TYPE)
VR301 ▲	321B1B53P0015	ROTARY VR. B5K 16m/m
VR401 ▲	321B1B53P0015	ROTARY VR. B5K 16m/m
VR402 ▲	32781B12H3011	SVR. 8m/m B100 ohm, ±20%.
VR403	CM1202A030301	SVR. 8m/m 5K ohm, PVC H.
VR404	327C1B52H401B	SVR. B500 ohm, (VC 191S)
VR405	32781B14H3011	V.S. VR. B10K ohm, 8m/m, H TYPE
VR406	327C1B33H4015	SVR. B 3K (VG 191S)
VR501	32781B13H3016	SVR. 8m/m, 1K ohm, PVC H
VR511	32781B13H3016	SVR. 8m/m, 1K ohm, PVC H
VR521	32781B13H3016	SVR. 8m/m, 1K ohm, PVC H
VR601	32781B55H3010	SVR. 8m/m, 500K PVC H
VR602	327D1B16H3016	SVR. B1M ohm
VR801 ▲	CM1202A030301	SVR. 8m/m 5K PVC H
	COIL & FILTERS	
TLF01 ▲	3A56130000018	POWER LINE FILTER
L401 ▲	CM1202A030042	LINEARITY COIL
L402 ▲	CM1202A030051	WIDTH COIL
L403 ▲	CM1202A030051	WIDTH COIL
L501	3526R8K0E0011	PEAKING COIL, 6.8μH ±10%
L511	3526R8K0E0011	PEAKING COIL, 6.8μH ±10%
L521	3526R8K0E0011	PEAKING COIL, 6.8μH ± 10%
L531	3510012BK0E10	CHOKE COIL, 125μH, ±10%
L801	3A56140000011	FILTER 3.58MHz
LC801	3A53130000023	EMI FILTER 2200P 100V
LC802	3A53130000023	EMI FILTER 2200P 100V
	TRANSFORMERS	
T891 ▲	39B1211060019	POWER TRANSFORMER 120V 60Hz 0.6A
T301	CM1202A030085	DRIVE TRANS
T302 ▲△	CM1202A030034	F.B.T.
T401	CM1202A030093	PINCUSHION TRANS
T402	CM1202A030107	CHOKE COIL

REF NO.	PART NO.	DESCRIPTION
FUSE FUSEHOLDER LAMP		
PL1 ▲	3741000000018	NEON LAMP 0.3 mA/125V
CLIP0	37621P0000017	FUSE HOLDER 6.5 x 31.5m/m
F801 ▲	3A67201230216	FUSE 3A UL 6.3 x 32m/m 250V SL
F802 ▲	3A67200210203	FUSE 1A/250V NORMAL-BLO
F803 ▲	3A67200210203	FUSE 1A/250V NORMAL-BLO
MISCELLANEOUS		
ASSYO	CM1200A400413	9P wire 4FT
C491	CM1202A030433	HV CAPACITOR
CORDO	412069A700011	POWER SUPPLY CORD 2100 ± 10/mm
DC01	37C0000000017	9P D-CONNECTOR (MALE)
L891 ▲	3932120000014	DEGAUSSING COIL
SOCK1	3786209B00018	9 PIN D-CONNECTOR INPUT SOCKET
B403	3786206P00015	6P BASE 7.5m/m
B501	3783106P00011	SOCKET 6P BASE
B502	3783106P00011	SOCKET 6P BASE
B503	3783102P00041	SOCKET 2P MICRO
B504	3783103P00036	SOCKET 3P MICRO
B505	3784104P00014	4P BASE MINI (UL)
B601	3783103P00036	SOCKET 3P MICRO
B801	3786202P00011	2P BASE 7.5m/m
B802	3784104P00014	4P BASE MINI (UL)
B803	3786202P00011	2P BASE 7.5m/m
B804	3786202P00011	2P BASE 7.5m/m
B805	3786202P00011	2P BASE 7.5m/m
B806	3783106P00011	SOCKET 6P BASE
B807	3783106P00011	SOCKET 6P BASE
B808	3784102P00017	2P BASE Mini (UL)
B809	3784103P00011	3P BASE MINI (UL)
BR801	1120000017CEO	BRIDGE DIODE KBP02
PCB01	375M1202AMA00	MAIN PCB
PCB02	375M1202A3A00	POWER PCB
PCB03	375M1202A5A02	CRT PCB
SG1	CM1202A030387	SPARK GAP. 100V
SG2	CM1202A030387	SPARK GAP. 100V
SG3	CM1202A030387	SPARK GAP. 100V
SG4	CM1202A030395	SPARK GAP. 250V
SG5	BM1200A030065	SPARK GAP. 750V
SOCKO	3782211P00024	CRT SOCKET
TH801 ▲	3180000000055	PTCR 8 ohm
MECHANICALS		
1M01	501109A073016	FRONT CABINET
1M02	501121A070001	BACK FRONT
1M03	524913A010104	ON-OFF KNOB
1M04	524946A010108	BRIGHT KNOB
2M051-2M052	514914A010141	CONNECTOR (TOP)
2M061-2M062	514915A010101	CONNECTOR (BOTTOM)
2M071-2M072	514917A010106	SUPPORTER (B)
1M08	534912A130203	NEON LAMP HOOD
2M191-2M194	544918A010106	LEG
1M101	544900A020108	RUBBER WASHER
1M104	544900A020108	RUBBER WASHER
1M11	644928A156011	COLOR OVERLAY
1M12	604899A023001	CRT WASHER

REF NO.	PART NO.	DESCRIPTION
	MECHANICALS	
1M13	664200B097007	GROUND SPRING
1M14	604891A023018	KNOB BRACKET
1M15	643145A156010	NAMEPLATE
1M16	764978A000009	SPONGE CUSHION
1M17	554116B000003	INSULATION SHEET
1M181	504184B070208	SCREW COVER (BOTTOM)
1M184	504184B070208	SCREW COVER (BOTTOM)
2M01	603205A023009	PCB FRAME
2M02	604141B023008	PCB FIXTURE (R)
2M03	604897A023006	PCB FIXTURE (L)
2M04	602120A150000	POWER IC HEAT SINK
2M05	603203A150005	HOR. OUTPUT HEAT SINK
2M06	604892A023002	TRANS. BRACKET
2M07	604909A170009	FBT SHIELD HOOD
2M081-2M08F	554142A010000	BINDER
2M091	604385A104004	PRESSURE TERMINAL
2M092	604385A104004	PRESSURE TERMINAL
2M101	514921A010101	VR TUBE
2M11	603159A023016	PCB RIBBAND (A)
2M12	604138B023005	PCB RIBBAND (R)
2M13	603204A023006	PCB RIBBAND (B)
2M14	604139B023008	RIBBAND BRACKET
2M15	604140B023005	FBT FIXTURE
2M161	544944A260000	FOCUS COVER
2M162	544944A260000	FOCUS COVER
2M171	613157A160009	SOCKET COVER
2M172-2M174	613157A160009	SOCKET COVER
2M181-2M182	624962A120001	SOCKET STUD
2M191-2M194	624974A010009	SOCKET FIXTURE SCREW
2M201-2M204	604975A020009	SOCKET COVER WASHER
2M21	604211B140000	GROUND SHEET
2M23	914638A000506	WIRE SADDLE
2M24	514813A010104	PCB GUIDE RAIL B
1S011-1S014	8033402501002	4¢ x 25 TAP
1S021-1S022	8033401401004	4¢ x 14 TAP
1S031-1S032	8033401401004	4¢ x 14 TAP
1S051-1S052	8033401401004	4¢ x 14 TAP
1S04	8033401401004	4¢ x 14 TAP
1S061-1S063	8023401001006	4¢ x 10 TAP
1S071-1S07	8023401001006	4¢ x 10 TAP
1S081-1S082	8030301001001	3¢ x 10 TAP
1S091-1S096	8030301001001	3¢ x 10 TAP
1S10	8026300801000	3¢ x 8 TAP V-HEAD
1S111-1S112	8031301005008	3¢ x 10 TAP
1S121-1S122	8026300801000	3¢ x 8 TAP V-HEAD
1S131-1S136	8026300801000	3¢ x 8 TAP V-HEAD
1S141-1S143	8026300801000	3¢ x 8 TAP V-HEAD
1S151-1S152	8026301001007	3¢ x 10 TAP V-HEAD
1S161-1S163	8026300801000	3¢ x 8 TAP V-HEAD
1S17	8026300801000	3¢ x 8 TAP V-HEAD
1S181-1S182	8026301001007	3¢ x 10 TAP V-HEAD
1S191-1S192	8026300801000	3¢ x 8 TAP V-HEAD
1S201-1S202	8026301001007	3¢ x 10 TAP V-HEAD
1S211-1S214	8010401402008	4¢ x 14 TAP TIP
1S221-1S222	8026300801000	3¢ x 8 TAP V-HEAD
2S011-2S-12	8004401001007	M4x10 ISO B-HEAD
2S02	8007400801002	M4X8 ISO WITH SP.
2S031-2S032	8007401001000	M3x10 IOS WITH SP.

REF NO.	PART NO.	DESCRIPTION
	MECHANICALS	
2S041-2S045	8007301201007	M3x12 ISO WITH SP.
2S051-2S054	8000301102002	M3x11 ISO
2S061-2S063	8110431001001	M4(4.3x7x1.0) SP. W
2S081-2S082	8110310701001	M3(3.15x5.9x0.7) SP. W
2S071-2S073	8110431001001	M4(4.3x7x1.0) SP. W.
2S091-2S092	8130320451008	M3(3.2¢) O.T. WASHER
2S101-2S102	8130320451008	M3(3.2¢) O.T. WASHER
2S11	8130320451008	M3 O.T. WASHER
2S121-2S122	8130320451008	M3 O.T. WASHER
2S131-2S132	8130430451002	M4 O.T. WASHER
2S011-2S012	8200300242003	M3 NUT ISO
3S021-3S024	8200300242003	M3 NUT ISO
3S041-3S045	8200300242003	M3 NUT ISO

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